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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,142	09/09/2003	Tatsuhiko Monji	056208.52762US	4042
23911 7590 01/07/2008 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER ALLISON, ANDRAE S	
			ART UNIT 2624	PAPER NUMBER
			MAIL DATE 01/07/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/657,142

Applicant(s)

MONJI, TATSUHIKO

Examiner

Andrae S. Allison

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed on October 26, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Remarks

1. The Office Action has been issued in response to RCE filed October 23, 2007.

Claims 1-16 are pending.

Response to 103 Rejection Arguments

In response to applicant's argument on page 2 that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. a switch for switching the invisible light flood light and wherein said image pick-up device compares said objects when said invisible light floodlight is on to said objects when said invisible floodlight is off) are not recited in the previously rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim Rejections - 35 USC § 103

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (Translation, JP02000019259) in view of Shigeo (Translation, JP 2001189926) further in view of Akira (Abstract, JP11-215487).

As to independent claim 11, Kojima discloses an on board image processing apparatus (4, see Drawing 1) for recognizing surrounding objects of a vehicle ([p][0002],

lines 1-2), based on image signals comprising: an image pick-up device (2, camera head, see Drawing 1) for picking up a circumference of said vehicle, the image pick-up device being equipped with a first pixel row zones which have sensitivity to visible light and a second pixel row zones which have sensitivity to invisible light alternatively (note that the camera head is equipped with infrared and visible light cameras, see [p][0011], lines 2-3), wherein the apparatus further comprises an image signal processing section (see Fig 7) for recognizing the objects using visible light zone image signals obtained from the first pixel row zones and image signals obtained from the second pixel row zones (see [p][0020]-[0022], where images captured from the infrared and visible cameras are processed for recognizing a pedestrian), a visible light head light (see Drawing 1).

However, Kojima does not disclose expressly the image pick-up device being equipped with a first pixel row zones which have sensitivity to visible light and a second pixel row zones which have sensitivity to invisible light, an invisible flood light and a switch for switching the invisible light flood light. Shigeo discloses an image pickup device for detecting obstruction ([p][0001], lines 1-3), the image pickup device equipped with a first pixel row zones which have sensitivity to visible light and a second pixel row zones which have sensitivity to invisible light alternatively (see Drawing 2) and a switch (716, see Drawing 6) for switching the invisible light flood light.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to substituted the camera head of Kojima with the image pickup device of Shigeo for capturing infrared and visible images alternatively, and also to create a more

compact on board processing apparatus. Furthermore, it would have been obvious to include in an invisible flood light in the environmental recognition equipment of Kojima to provide a invisible light so that the light reflected from object can be detected by the invisible light sensor.

Note the discussion above, neither Kojima or Shigeo teach wherein said image pick-up device compares said objects when said invisible light floodlight is on to said objects when said invisible floodlight is off. Akira discloses a Pedestrian sensing and alarming system wherein said image pick-up device compares said objects when said invisible light floodlight is on to said objects when said invisible floodlight is off (note that an infrared image is captured and compared with a reference signal and further processed using a differential arithmetic section, see abstract). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Kojima as modified by Shigeo and Akira for capturing a scene in front of a vehicle using visible and infrared cameras to determine if a pedestrian is present and issue a warning accordingly (see abstract).

As to independent claim 14, all the limitations are discussed above except: an on board image recognition apparatus comprising an image pick-up lens and a image pick-up device, wherein there is disposed between the image pick-up lens and the image pick-up device a filter having an area that transmits visible light and an area that intercepts the visible light. Kojima discloses an on board image recognition apparatus (4, see Drawing 1 of Kojima) comprising an image pick-up lens (see Drawing 12) and a

image pick-up device (2, camera head, see Drawing 1), wherein there is disposed between the image pick-up lens and the image pick-up device a filter (12 A and 12B, see Drawing 5) having an area that transmits visible light and an area that intercepts the visible light ([p][0015], lines 1-5).

As to independent claim 16, all the limitations are discussed above except: an on board image recognition apparatus comprising an image pick-up lens and a image pick-up device, wherein the image pick-up device is constituted by a photo sensitive element having sensitivity to visible light and a photosensitive element having sensitivity to invisible light. Note the discussion above, Kojima and Shigeo teach an on board image recognition apparatus (4, see Drawing 1 of Kojima) comprising an image pick-up lens (see Drawing 12 of Kojima) and a image pick-up device (2, camera head, see Drawing 1 of Kojima), wherein the image pick-up device the is constituted by a photo sensitive element (3, photo detector, see Drawing 2 of Shigeo) having sensitivity to visible light ([p][0021], lines 1-2 of Shigeo) and a photosensitive element (2, photo detector, see Drawing 2 of Shigeo) having sensitivity to invisible light ([p][0021], line 2 of Shigeo).

As to claim 2, Kojima teaches the on board image recognition apparatus as defined in claim 1, wherein the infrared light is used as the invisible light ([p][0014], line 3).

As to claim 3, neither Kojima or Shigeo teach the on board image recognition apparatus wherein ultraviolet light is used as the invisible light. However, ultraviolet

light is a well known form of invisible light that make up the light spectrum, therefore it would have been obvious to have substituted ultra violet light for the infrared light.

As to claim 4, note the discussion above, Shigeo teaches the on board image recognition apparatus, wherein each of the first pixel row zones of the image pick-up device that are sensitive to visible light are constituted by each of the first light sensitive elements (photo detector 3, see Drawing 2) sensitive to visible light ([p][0021], line 1), and each of the second pixel row zones of the image pick-up device that are sensitive to the invisible light are constituted by second light sensitive elements (photo detector 2, see Drawing 2) sensitive to invisible light ([p][0021], line 2).

As to claim 5, note the discussion above, Shigeo teaches the on board image recognition apparatus wherein the image pick-up device has a first filter (18, light filter, see Drawing 5) that transmits visible light ([p][0024], lines 6-7) disposed in front of the first light sensitive elements to constitute first pixel row zones, and a second filter (19, infrared filter, see Drawing 5) that transmits invisible light ([p][0024], lines 7-8) disposed in front of the second element to constitute the second pixel row zones.

As to claim 6, note the discussion above, Shigeo teaches the on board image recognition apparatus wherein each of the first pixel row zones sensitive to visible light and each of the second pixel row zones sensitive to invisible light are constituted by

pixel rows arranged in the horizontal direction ([p][0021], lines 1-3), both of the pixel row zones being arranged in perpendicular direction alternatively (see Drawing 2)..

As to claim 7, neither Kojima or Shigeo teach the on board image recognition apparatus wherein the density of the first pixel row zones sensitive the visible light is higher than that of the second pixel row zones sensitive to the invisible light in the image pick-up device. Applicant has not disclosed that having the density of the first pixel row zones sensitive the visible light higher than that of the second pixel row zones sensitive to the invisible light in the image pickup device provides an advantage, is used for a particular purpose or solves a stated problem. Therefore it would have been obvious to have the density of the first pixel row zones sensitive the visible light higher than that of the second pixel row zones sensitive to the invisible light in the image pickup device

As to claim 8, note the discussion above, Shigeo teaches the on board image recognition apparatus wherein each of the first pixel row zones sensitive to the visible light and each of the second pixel row zones sensitive to the invisible light are constituted by pixel rows arranged in the perpendicular direction ([p][0022], lines 1-3), both of the pixel row zones being arranged in the horizontal direction alternatively (see Drawing 3).

As to claim 9, Kojima teaches the on board image recognition apparatus, wherein

the image signal processing section recognizes a high reflection object and a low reflection object based on information of difference value (difference image, [p][0066], lines 1-3) between the first pixel row zones and the second pixel row zones that adjoin each other in the horizontal direction or the perpendicular direction.

As to claim 10, Kojima teaches the on board image recognition apparatus wherein the image signal processing section recognizes, based on the recognition results of the high reflection object and the low reflection object an oncoming car ([p][0070], lines 1-3).

As to claim 11, neither Kojima or Shigeo teach the on board image recognition apparatus, wherein the image signal processing section performs controlling of turn-on of invisible light floodlight, based on the visible light image signals. However, it would have been obvious to have turn on an invisible light source so that reflected invisible light from an object can be captured by invisible light sensors, thereby creating invisible light images.

As to claim 13, Kojima teaches the on board image recognition apparatus wherein the image signal processing section uses selectively, based on the state of turn-on of the invisible light floodlight, the visible light image signals and the invisible image signals to create image signals for displaying on a monitor screen ([p][0018], lines 1-10).

As to claim 15, note the discussion above, Shigeo teaches the on board image recognition apparatus wherein the image pick-up device is a CCD for monochrome ([p][0002], line 6).

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima (Translation, JP02000019259) in view of Shigeo (Translation, JP 2001189926) further in view of Akira (Abstract, JP11-215487).further in view of Yasui et al (US Patent No.: 6,163,022).

As to claim 12, note the discussion above, neither Kojima or Shigeo disclose the on board image recognition apparatus, wherein the image signal processing section detects a run lane based on the detected object.

Yasui discloses an image apparatus wherein the image signal processing section detects a run lane (31, lane detection, see Fig 8) based on the detected object (column 11, lines 50-60). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the image apparatus of Yasui to the environmental recognition device of Kojima as modified by Shigeo and Akira to capture infrared and visible images for detecting a lane along which a car is traveling, thus detecting if a run lane or lane departure has occurred.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

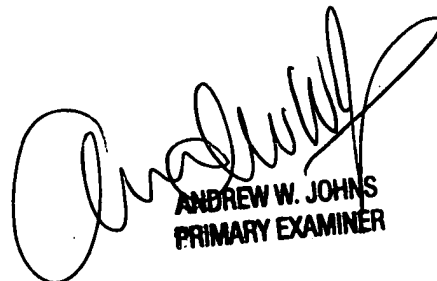
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Meta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

January 3, 2008

A-A-



ANDREW W. JOHNS
PRIMARY EXAMINER